

AMENDMENT TO THE CLAIMS:

This listing of claims will replace all prior versions of claims in the application:

LISTING OF CLAIMS:

1. (CURRENTLY AMENDED) A magnetic head, comprising:
a free layer;
an antiparallel (AP) pinned layer structure spaced apart from the free layer; and
a high coercivity structure positioned towards the AP pinned layer structure on
an opposite side thereof relative to the free layer, the high coercivity
structure pinning a magnetic orientation of the AP pinned layer structure,
wherein a magnetic thickness of the high coercivity structure and the pinned
layer of the AP pinned layer structure positioned closest thereto is about
equal to a magnetic thickness of the pinned layer of the AP pinned layer
structure positioned farthest from the high coercivity structure.
2. (ORIGINAL) A head as recited in claim 1, wherein the AP pinned layer
structure includes at least two pinned layers having magnetic moments that are
self-pinned antiparallel to each other, the pinned layers being separated by an
AP coupling layer.
3. (ORIGINAL) A head as recited in claim 2, wherein the pinned layers of the AP
pinned layer structure are formed of CoFe.
4. (CURRENTLY AMENDED) A magnetic head as recited in claim 2,
comprising:
a free layer;
an antiparallel (AP) pinned layer structure spaced apart from the free layer; and

a high coercivity structure positioned towards the AP pinned layer structure on an opposite side thereof relative to the free layer, the high coercivity structure pinning a magnetic orientation of the AP pinned layer structure, wherein the AP pinned layer structure includes at least two pinned layers having magnetic moments that are self-pinned antiparallel to each other, the pinned layers being separated by an AP coupling layer,

wherein a magnetic thickness of the high coercivity structure and the pinned layer of the AP pinned layer structure positioned closest thereto is about equal to a magnetic thickness of the pinned layer of the AP pinned layer structure positioned farthest from the high coercivity structure.

5. (ORIGINAL) A head as recited in claim 1, wherein the high coercivity structure includes a layer of CoPtCr.

6. (CURRENTLY AMENDED) A magnetic head as recited in claim 5,
comprising:
a free layer;
an antiparallel (AP) pinned layer structure spaced apart from the free layer; and
a high coercivity structure positioned towards the AP pinned layer structure on an opposite side thereof relative to the free layer, the high coercivity structure pinning a magnetic orientation of the AP pinned layer structure,
wherein the high coercivity structure includes a layer of CoPtCr,
wherein the high coercivity structure further includes an amorphous layer positioned between the layer of CoPtCr and the AP pinned layer structure.

7. (ORIGINAL) A head as recited in claim 6, wherein the amorphous layer comprises CoFeX, where X is selected from a group consisting of Nb, Zn and Hf.

8. (ORIGINAL) A head as recited in claim 5, wherein the high coercivity structure further includes a seed layer of magnetic material under the CoPtCr, the seed layer allowing proper growth of the CoPtCr.
9. (ORIGINAL) A head as recited in claim 1, wherein the head forms part of a GMR head.
10. (ORIGINAL) A head as recited in claim 1, wherein the head forms part of a CPP GMR sensor.
11. (ORIGINAL) A head as recited in claim 1, wherein the head forms part of a CIP GMR sensor.
12. (ORIGINAL) A head as recited in claim 1, wherein the head forms part of a tunnel valve sensor.
13. (ORIGINAL) A magnetic head, comprising:
 - a free layer;
 - an antiparallel (AP) pinned layer structure spaced apart from the free layer;
 - a layer of CoPtCr positioned towards the AP pinned layer structure on an opposite side thereof relative to the free layer, layer of CoPtCr pinning a magnetic orientation of the AP pinned layer structure; and
 - an amorphous layer positioned between the layer of CoPtCr and the AP pinned layer structure.
14. (ORIGINAL) A head as recited in claim 13, wherein the AP pinned layer structure includes at least two pinned layers having magnetic moments that are self-pinned antiparallel to each other, the pinned layers being separated by an AP coupling layer.

15. (ORIGINAL) A head as recited in claim 14, wherein the pinned layers of the AP pinned layer structure are formed of CoFe.
16. (ORIGINAL) A head as recited in claim 14, wherein a magnetic thickness of the layer of CoPtCr, amorphous layer, and the pinned layer of the AP pinned layer structure positioned closest to the amorphous layer is about equal to a magnetic thickness of the pinned layer of the AP pinned layer structure positioned farthest from the amorphous layer.
17. (ORIGINAL) A head as recited in claim 13, wherein the amorphous layer comprises CoFeX, where X is selected from a group consisting of Nb, Zn and Hf.
18. (ORIGINAL) A head as recited in claim 13, further comprising a seed layer of magnetic material upon which the CoPtCr is formed.
19. (ORIGINAL) A head as recited in claim 13, wherein the head forms part of a GMR head.
20. (ORIGINAL) A head as recited in claim 13, wherein the head forms part of a CPP GMR sensor.
21. (ORIGINAL) A head as recited in claim 13, wherein the head forms part of a CIP GMR sensor.
22. (ORIGINAL) A head as recited in claim 13, wherein the head forms part of a tunnel valve sensor.
23. (ORIGINAL) A magnetic storage system, comprising:
magnetic media;

at least one head for reading from and writing to the magnetic media, each head
having:
a sensor having the structure recited in claim 1;
a writer coupled to the sensor;
a slider for supporting the head; and
a control unit coupled to the head for controlling operation of the head.

24. (ORIGINAL) A magnetic storage system, comprising:
magnetic media;
at least one head for reading from and writing to the magnetic media, each head
having:
a sensor having the structure recited in claim 13;
a writer coupled to the sensor;
a slider for supporting the head; and
a control unit coupled to the head for controlling operation of the head.